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Canberra

I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002951674 for a patent by OWEN KEITH HUTCHISON as filed on 26 September 2002.

I further certify that the above application is now proceeding in the name of INNOVATIVE MOTORCYCLE TECHNOLOGY PTY. LTD pursuant to the provisions of Section 113 of the Patents Act 1990.

WITNESS my hand this
Eleventh day of August 2003

17

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

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**Australia
Patents Act 1990**

**Provisional Specification
Provision Patent**

**Combined Clutch Brake Lever Actuator
with Pull Action Bias Control,
Slide and Friction Adjuster**

The invention is described in the following statement:

Received in IP Aus:

26 SEP 2002

Canberra

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Combined Clutch Brake Lever Actuator with Pull Action Bias Control, Slide and Friction Adjuster.

Description

This invention is intended to improve the controllability of motorised vehicles fitted with a hand operated clutch and a foot operated rear brake. It came about as a result of difficulties I had in operating the rear brake pedal of a motorcycle whilst negotiating difficult terrain. As your hands are always on the handlebars the underlying principle is that as many controls as possible should be hand operated.

The following invention is based on that principle, by bringing rear brake controls that are normally foot operated into a hand control and combining it with the clutch control in a manner that improves the safety of the vehicle.

A system of levers fitted to the left hand side of the handlebar on a motorised vehicle, finger operated, that actuates the clutch and rear brake that enables the operator to operate the rear brake or clutch or a combination of these two functions.

To assist in the understanding of the invention reference will now be made to the accompanying drawings.

Figure (1) shows the combined clutch brake lever from above whilst on the vehicle.

Figure (2) shows a partial cross-section, looking from in front of the vehicle.

If the lever is pulled towards the handlebar from Position A initially the rear brake is actuated, and as the lever is pulled further towards the handlebar the clutch is activated. If the lever is pulled from Position B initially the clutch is actuated and as the lever is pulled towards the handlebar the rear brake is also activated. Pulling the lever from a position in between A and B enables you to bias between brake and clutch functions. A Slide (12) which runs on bearings helps the operators finger or fingers shift from Point A to Point B.

Tactile indication of the initiation of the brake function could also be provided in this system, for example, by using a spring loaded ball and detent.

Also shown in Figure (2) is a friction adjuster (13). The aim of this adjuster is to impart friction and thus lock the longer of two levers when downward pressure is exerted on the slide. This feature enables the operator to set a desired braking force and then alter the clutch setting without changing the brake force.

The drawings show hydraulic connections to the brake, (10), and clutch, (11), and a fluid reservoir, (7).

Also shown in the drawings are the following adjusters:

1. Clutch slack adjuster
2. Rear brake slack adjuster
3. Clutch actuation point with rear brake bias
4. Rear brake actuation point with clutch bias
12. Slide
13. Friction adjuster

It will be realised that the combined clutch and brake lever according to this invention is not restricted to the use of hydraulic cylinders as shown in the example, but may use other suitable forms of operating the clutch and brake. For example pneumatic, electric or any other means by which the brake and clutch can be effectively activated. It will be further realised the leverage ratios and hydraulic cylinder sizes shown are for example only and an individual vehicle may require re-positioning of pivot points, changing of leverage ratios or cylinder sizes or the use of power assistance to increase efficiency.

Also if required, the brake master cylinder and the clutch master cylinder could be swapped over i.e., then pulling the lever from position A would operate first the clutch and pulling the lever from position B would operate first the rear brake.

-2-

I believe that this invention offers the following advantages over vehicles fitted with hand operated clutch and foot operated brakes.

1. Allows operator to utilise the rear brake whilst the operator's weight is placed at the extremes of it's mobility thus enhancing the controllability of the vehicle
2. Allows use of the vehicle by certain groups of disabled people.
3. Simplifies the controls of the vehicle by virtue of the concept that a single lever is able to control the rotational speed of the rear wheel (within the constraints of gear selection and throttle setting)
4. Can be adjusted to help prevent stalling whilst using the rear brake of the vehicle
5. Can be adjusted to help prevent rearward motion of the vehicle
6. Allows the operators foot that would normally activate the rear brake to perform other functions i.e for dynamic or static stability, assistance for forward motion or for balance
7. Allows the rear brake of a vehicle to be used without weight being transferred to the side of the vehicle that the rear brake pedal was on. This reduces the side loading on the front tyre whilst using the rear brake
8. Allows the redesign of the foot pegs to allow the rider to better shift his/her weight for and aft
9. By adjusting the overlap between the clutch and brake functions better control may be achieved over the retardation of the rotational speed of the rear wheel.

Owen Hitchison

26th September 2002

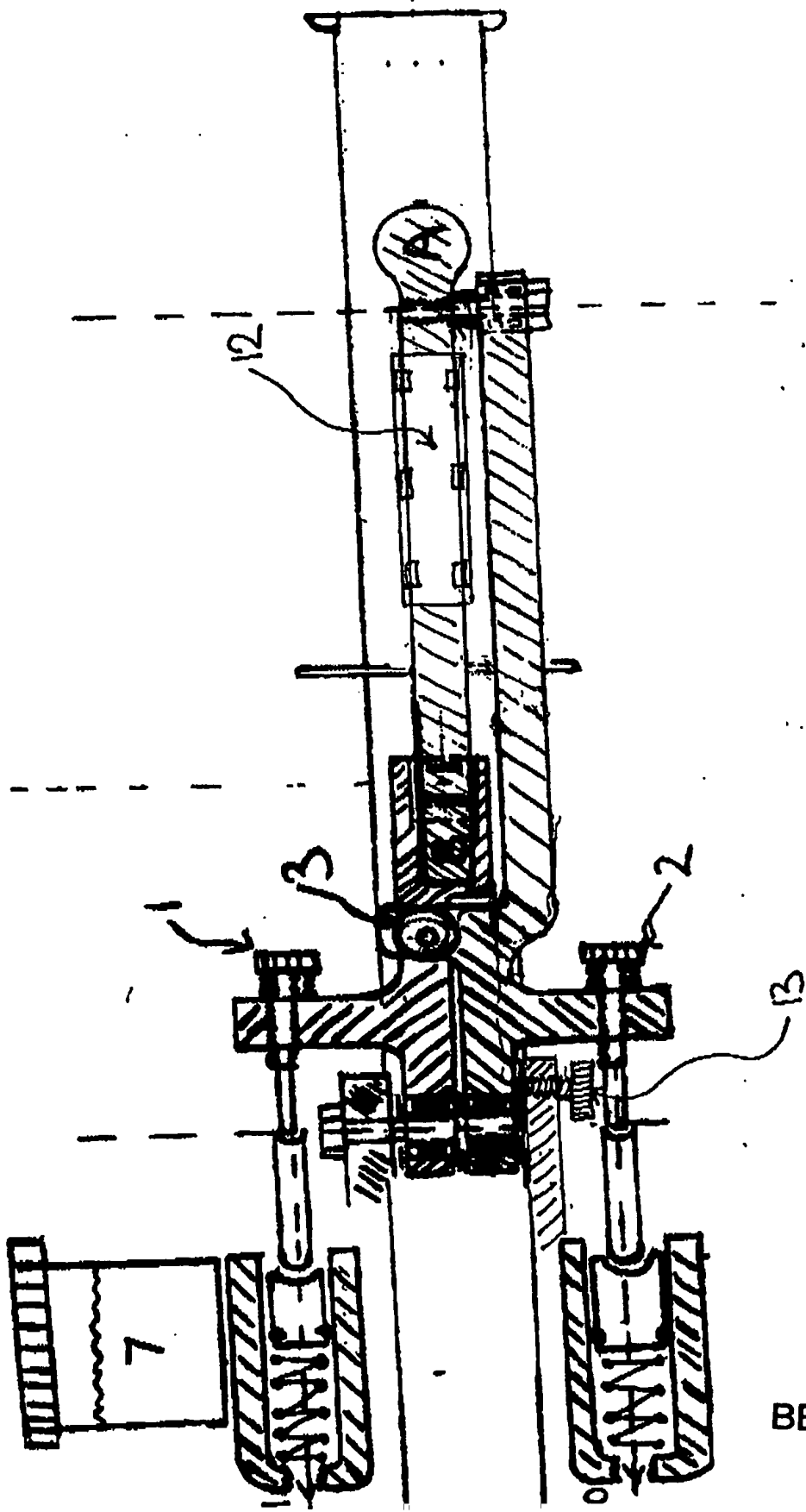
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Abstract

A system of levers fitted to the left hand side of the handlebar on a motorised vehicle, finger operated, that actuates the clutch and rear brake, that enables the operator to operate the rear brake or clutch or a combination of these two functions.

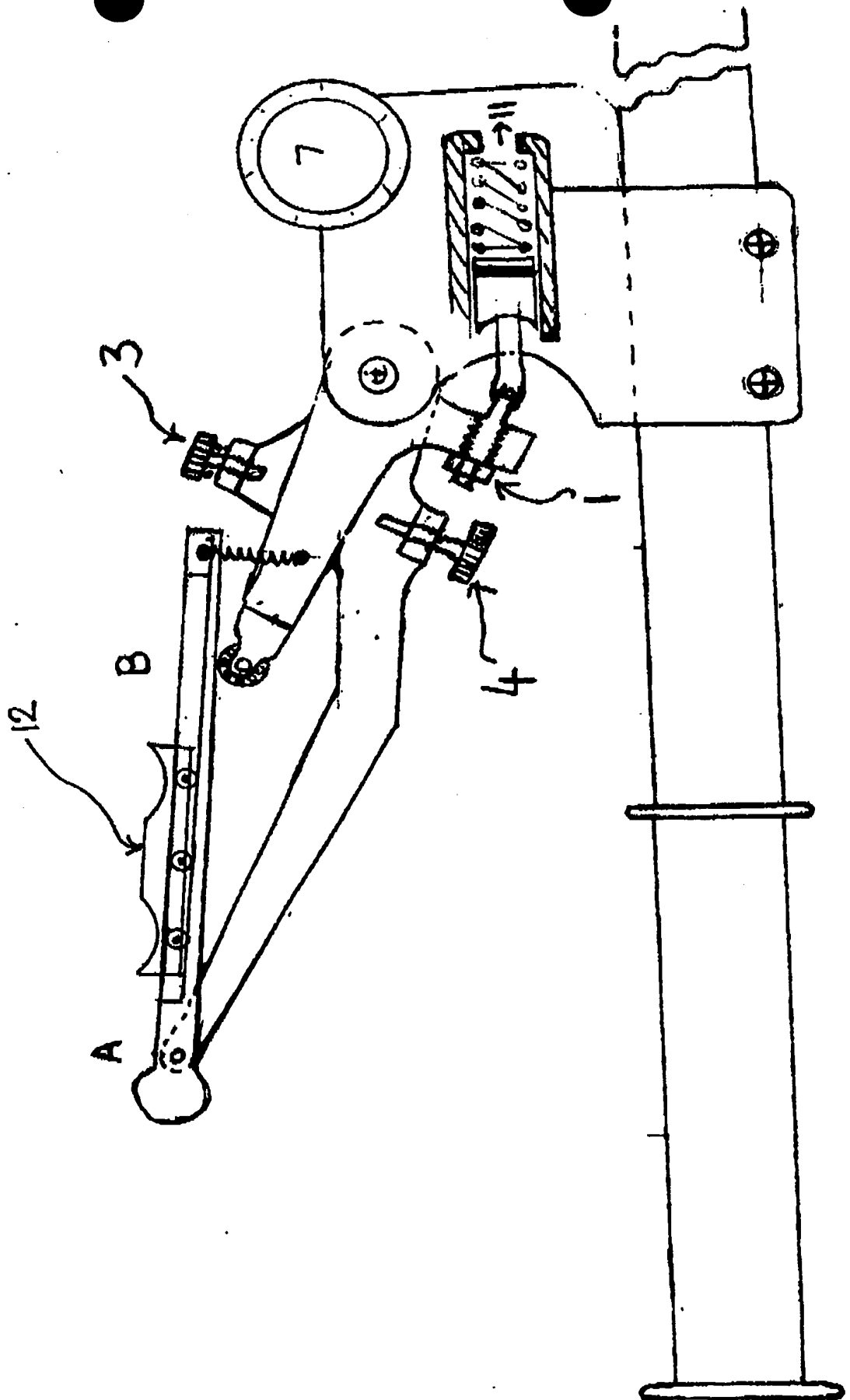
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Figure 2



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Figure 1



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